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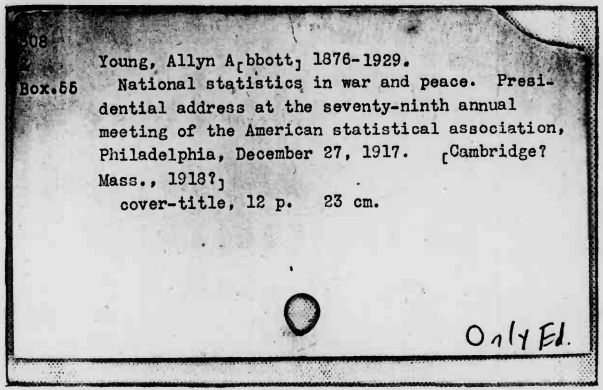

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Prof. E. R. A. Seligman

National Statistics in War and Peace

By ALLYN A. YOUNG

PRESIDENTIAL ADDRESS AT THE SEVENTY-NINTH ANNUAL MEETING OF THE AMERICAN STATISTICAL ASSOCIATION, PHILADELPHIA, DECEMBER 27, 1917

NATIONAL STATISTICS IN WAR AND PEACE.*

By Allyn A. Young.

Our national participation in the war has brought with it an enormous demand for prompt and exact statistical information. Such a demand is, of course, an inevitable accompaniment of a war waged under modern conditions. War has come to be a conflict of directed masses,—of aggregates. Men, money, munitions, food, railways, shipping, raw materials, and manufactured products in great variety are impressed into the service of the nation. The problems of the effective control and use for war purposes of these varied national resources is intimately dependent upon a knowledge of their quantities, that is, upon statistics. Like chemistry, physics, and the applied sciences, statistical knowledge and the statistical method have come to be important tools of modern warfare. Just as this war is our largest national undertaking, so its statistical demands constitute, in the aggregate, the largest statistical problem with which we have had to deal.

The statistical activities of the federal government in times of peace cover in the main only those phases of national life which are deemed to be of public and especially of political moment. Our census of population is taken primarily to afford a basis for congressional apportionment; our census of manufactures and our foreign trade statistics still bear the marks of tariff controversies, and our federal statistics of wages and prices may be traced back to the same origin. In other fields, as diverse as immigration and railway transportation, our federal statistics are at once a by-product of federal control and a guide in the exercise of that control. In the fields of federal finance, money, and banking, our statistics are largely administrative by-products. The statistical work

*Presidential Address at the seventy-ninth Annual Meeting of the American Statistical Association, Philadelphia, December 27, 1917.

of the Department of Agriculture is a recognition, inadequate as yet, of a public interest which is probably only in small part political, and so with the statistical work of the Geological Survey and the Bureau of Mines. The work of the Bureau of the Census in the field of vital statistics is the most noteworthy example of the recognition of a large social interest which is not primarily either economic or political.

Thus the federal government, in its statistical work, has touched the current of our national life at only relatively few points, and at some of these only intermittently. For the most this current flows on in its own channels, free from disturbance or questioning or measurement by the government. Except to the tax-gatherer, a large part of the productive and business activities of the country have not been deemed to be matters of public concern, even as group aggregates.

The changes brought by our entrance into the war have been profound. Other activities have had to be subordinated to the necessities of the efficient and successful conduct of the war. This subordination, we may well believe, is only imperfectly realized as yet. If the war continues it is certain that the field of activity over which the public interest will be deemed to extend must be much further widened.

Our national problem, in its essence, is that of directing our efforts and output into new channels, of focusing all of our national energies on the one supreme task before us. Individual desires and whims are no longer masters of our economic life. Instead of doing what it is most profitable to do, men are beginning to do, and to do willingly, what they are bidden to do.

This new ordering of life works through such diverse forms as the drafting of men, the commandeering of ships and workshops and supplies, the control of prices and output, the restriction of exports and imports, the supervision of the processes of market distribution, the regulation of consumption, the coördination and administration of transportation agencies, the solution of labor difficulties, the raising of vast sums of money through taxes and loans, and the creation of priority rights.

The successful execution of such a program calls for a degree of national self-knowledge far beyond anything that we might

have imagined necessary or possible in the past. We have been suddenly thrust into a situation in which we find ourselves in urgent need of a complete inventory of our national assets and a complete record of our productive activities. In this need we find the explanation of that enormous demand for prompt and exact statistical information to which I have referred.

In this emergency we turned first to our existing stocks of statistical information and to the current statistical output of our government bureaus, and have realized, perhaps for the first time, how woefully incomplete and inadequate our federal statistics are. With our latest population figures seven years old, our latest statistics of manufacturing output three years old—and it is surprising to find how antiquated and how useless for present purposes this latest manufacturing census is—and with no information whatever respecting important fields of trade, we were in a state of statistical unpreparedness.

Under these conditions a war statistical service had to be improvised. With no centralizing and coördinating agency at work, the boards and commissions created to take charge of the various fields of war work have had to procure for themselves, as best they could, the statistical information needed for their purposes. In part, it is true, these inquiries have taken the form of assembling information furnished by other organizations, and more especially by the permanent statistical offices of the government. But there is scarcely a war board or commission in Washington that has not had to make independent statistical investigations of its own, involving the collection, tabulation, and analysis of necessary facts. In many instances this work has been of sufficient magnitude to lead to the organization of separate statistical bureaus or divisions within these war organizations. A few of these rival in the size of their staffs and of their statistical output the larger of the permanent statistical offices.

I shall not attempt to describe in any detail the work of these new statistical agencies. Hurriedly organized, confronted by really formidable tasks and by the necessity of getting quick results, it was inevitable there should have been much misdirected energy. In particular there has been,

admittedly, much duplication of inquiries. Each war organization, needing information of a kind not immediately available, has very naturally proceeded to obtain it at first-hand by direct investigation and inquiry. Because there is a large measure of overlapping in the statistical needs of the different war organizations there has been some overlapping of inquiries. Business men and trade organizations have found themselves required to furnish information, essentially similar, but with just enough differences to require the work to be done over again, for two or more Washington offices. These wastes are now becoming smaller, as a result of increasing knowledge on the part of each war organization of the activities of others. A less excusable form of duplication has come from the neglect on the part of some of the new organizations to inform themselves fully respecting the work of the established statistical bureaus, or, at any rate, from their failure to make use of the material that these permanent bureaus might easily have furnished them.

As for the work of these permanent bureaus, out of my own experience in the work of one of the war organizations, I can vouch for their unfailing attitude of helpful and generous coöperation. Certain of them, in fact, have taken on heavy additional burdens in this way. Thus one may cite the more adequate and more promptly published statistics that are now available for the production of minerals and metals, and the prompter tabulation of foreign trade statistics. These are merely examples, for there is hardly a statistical bureau in Washington that has not been called upon for some new or increased service. It must nevertheless be said that some of these bureaus have not risen to the full recognition of their opportunities. With so much that needs to be done, and so much that is being badly done by others by reason of insufficient experience or inadequate equipment, some of our permanent bureaus are giving virtually all of their energies to routine work, much of which is of relatively little present importance, or are merely marking time.

What I have just said should not be taken as imputing any blame to the men who are immediately responsible for the policies of these bureaus. Most of them are handicapped by inadequate appropriations and find it difficult for that reason

to arrange for any considerable increase in their functions. And in many instances the available appropriations are for specific purposes and cannot be transferred to new undertakings. Not only has it been easier to obtain funds for the new war offices than for the established organizations, but the new offices have been encumbered by fewer restrictions respecting the precise way in which they should use their funds. In this way they have virtually been compelled to do for themselves what might, in many cases, have been more economically and efficiently done by one or another of the permanent statistical bureaus. In statistical work, as in other fields of government activity, the new war organizations have been superadded to the preëxisting administrative machinery rather than merged with it,—a policy which has its disadvantages as well as its advantages.

Returning now to the topic of the work which has been done and which remains to be done by the different war statistical bureaus, it is to be observed that despite the differences in their tasks, a common thread of interest runs through their work. They are all concerned, fundamentally, with the general tasks which I have mentioned earlier in this discussion: the measurement of our national resources, whether in men, money, or goods; the determination of our actual and potential output of the immense variety of things that are important, directly and indirectly, in the conduct of the war; the gauging, so far as may be, of our own needs and those of our allies and of the other countries that have to be recognized as in some measure dependent upon us. The problems of raising and equipping a fighting force, of providing ships and munitions, of food and fuel control, of the regulation of exports and imports, of the organization of transportation, of industrial priority, of the adjustment of labor difficulties, of national economizing, and of war finance, are all inextricably interwoven. Back of all these special problems is the general problem of the relative urgency of different national needs,—the problem of priority in the widest sense. Here not only successful administration but even the right choice of policies depends upon full and accurate knowledge, and in particular upon statistical knowledge.

It is partly, perhaps, because this statistical problem is usually discussed in terms of its parts, rather than as a whole,

that its enormous importance has not been fully realized. When compared with our aggregate annual expenditures for war purposes, our expenditures for statistical purposes are seen to be almost pitifully inadequate. It is easy to see the wastes and the duplications in such statistical work as has been done. It is harder, perhaps, to realize the indispensable character of most of this work. It is even harder to visualize the real advantages and economies that would result from the organization of statistical inquiries on a vastly greater scale than now obtains.

Many of the mistakes that have been made—and some of them have undoubtedly been very costly—have been due to the lack of full and exact statistical information. Our expenditures for statistical purposes are not a thousandth part of our aggregate war expenditures. It might easily be wise economy to increase them ten or twenty fold. This much at least is certain: in range, in completeness within the fields which they cover, and in accuracy, the statistics now available furnish a wholly inadequate basis for the most efficient conduct of the task in hand. Our statistical apparatus has not expanded in any such degree as the field of public interest has grown. Confronted as we are by the necessity of making the most effective disposition of our national energies, we have not attempted to secure anything like a complete and accurate statement of the forces at our disposal. In some special fields our knowledge may be fairly complete, but in other fields it is either incomplete or non-existent. Most of all we lack the materials for a picture of the whole economic situation, invaluable as it would be as an aid in the shaping of national policies.

To make the point clear, imagine, if you will, what might have been accomplished if, when we entered the war, or even when our participation in the war came to be a serious possibility, there had been created a central statistical commission, instructed to develop a scheme for a comprehensive war statistical service. In the light of the experience of the other belligerents—for there are few elements of novelty in our own war problems—the greater part of our statistical needs might have been foreseen. Plans for the utilization and extension of the work of existing statistical bureaus, as well as for the creation

of new ones for special purposes, would very likely have been made. To begin with, there would have been a complete census of population, with inquiries respecting sex, age, marital condition, citizenship, nationality, occupation, and income. The schedule would have been simple and the tabulations would have been merely those which threw direct light upon the problems in hand. Among other things this would have afforded a definite basis for a genuinely selective draft and for the right construction of a war income tax. Then there should have been a general census of production, covering extractive as well as manufacturing industries, especially for the whole field of staple products, neglecting some of the customary inquiries, but putting special stress on such points as stocks and consumption of raw materials, stocks and output of finished products, capacity, existing contracts—foreign and domestic—and number of employees. Similar inquiries might advisably have been made in the field of market distribution, at least so far as the wholesale, jobbing, brokerage, commission, and storage trades are concerned.

In the second place, provision should have been made for keeping much of this information up to date, through some system of weekly or monthly reporting, thus doing for important fields of industry and trade what is already done for agriculture and mining. The population census, even, might well have been used as a starting point for continuous local population registers, under the charge of the police or of local registration officials. In all of this work it would be sufficient if the general tabulations showed classes only, but information respecting individuals and firms ought to be available, by means of proper formalities, to the appropriate branches of the war administration.

This may seem to be an ambitious statistical program, but, in view of the unprecedented magnitude of the interests involved, it is perhaps unduly modest. Certainly it would have to be supplemented, in any adequate scheme, by provisions for a more elaborate centralization of statistics of railway operations and of the general movement of goods, for very much more detailed statistics of foreign trade than we now have, for more comprehensive official records of wages and prices, and for the compilation of all available statistics bearing upon

economic conditions in other countries. I have left out of account the enormous mass of information that has to be gathered with reference to individual persons and firms and transactions, rather than to groups or aggregates, as primarily non-statistical in character. I have also omitted reference to the use of statistics in purely military operations, as a subject apart. It may be worth noting, however, that Napoleon put as much emphasis upon the value of complete statistics as a basis for military strategy as he did upon their use in the administration of civil affairs.[1]

Under such a scheme of organization as I have in mind the central statistical commission would have other functions than that of planning and apportioning the work to be done. It would remain as a centralizing and coördinating body, a clearing house for the national war statistical service. As new statistical demands arose they would be referred by it to the bureaus best qualified to secure the desired information. It would confer with the organizations asking for statistical service and with the bureaus furnishing this service respecting such practical matters as the best construction of schedules and the best tabulation of returns. Upon it would devolve the duty of making synthetic statistical studies of the whole national situation, the importance of which I shall try to indicate later.

I hope that I shall not be interpreted as meaning that no separate war statistical organizations should have been created, that all of the work should be done by established bureaus under the general direction of the suggested central commission. This would be manifestly undesirable and impossible. Some war organizations need statistical divisions for compiling and tabulating the records of their own activities. Some of them need special statistical inquiries or special statistical information that is of importance and interest only to themselves. In many instances, too, statistical material, wherever obtained, has to be combined and organized so as to meet the special needs of a particular organization.

The purpose of the suggested central commission would be, not to displace, but to coördinate and especially to supplement

[1] Cf. A. de Foville, *Napoléon Statisticien*, in Journal de la Société de Statistique de Paris, December, 1911.

such statistical work as would naturally and necessarily be done if no such commission existed. Nor is the matter of economy through avoidance of duplication the most important factor. The inevitable duplication of work on the part of bureaus that are concerned primarily with their own particular problems is a matter of relatively small moment compared to the fact that no number, no matter how large, of isolated bureaus will adequately cover the whole field of necessary statistical information, so far as that field is one in which their interests are common. Each separate organization may cover the field in which its own interests are special, but this is no guarantee that it will be able to find anywhere or to provide for itself such fundamental statistics as are of common interest to itself and to other organizations.

The difficulties under which war statistical work has been carried on in Washington have come very largely from the absence of any organization with power to formulate the statistical problem as a whole. But apart from the particular advantages which the existence of this fundamental general statistical information would give to the separate branches of the war administration, there is the yet larger gain that would come from a comprehensive view of our national assets, and more especially of our annual national product. This kind of view is essential to the wisest national strategy, to the most effective use of our available powers. Only in this way can we find the materials for an estimate of our possible national savings,—not in terms of money, but of labor and resources and goods. Only in this can we gauge the maximum amount that the government may wisely spend for war purposes as indicated by the part of the national product and of the national productive forces that it can divert to its own uses. Such a statistical survey would indicate not only the foods, but also the raw materials, finished products, and classes of productive agents of which the supply is short as well as those of which there is a surplus. It would suggest, at least, where national waste exists. In short it would point the way, as I have already suggested, to the most effective marshalling and redistributing of all of our national energies.

To summarize: Our governmental statistical work has been largely concerned with such affairs as have happened to be matters of public or political concern. War not only enlarges the field of public interest, but it also creates a new set of values. These new values are not the outcome of the "normal forces of supply and demand," but are, or should be, the expression of conscious decision respecting the relative worth of different things and different activities for the dominant national purposes. These values can be effectively recognized and expressed in action only on the basis of a far more comprehensive mass of statistical information than has been available or is likely soon to be available. A practicable if not the only method of planning for and obtaining these statistics on an adequate scale is through the agency of a central statistical commission. The cost, however great, would be small as compared merely with the magnitude of the economic problems dependent for a right solution upon the knowledge such statistics would give, and wholly negligible in view of the larger interests involved.

What light does this review of the problem of statistical organization in war time throw upon the problem of statistical organization in time of peace?

It is not to be presumed that after peace is to be concluded we shall continue to want precisely the sorts of statistics that are now needed, that the field of public interest will be wholly unchanged. Nor is it to be presumed that we will be interested, as a nation, in just the things that were deemed most important before the war. The boundaries of the field of public interest will be narrower, undoubtedly, than they now are, but they will not be just what have been in the past. The lapse back from a thoroughly awakened national consciousness will not be complete. However large the measure of freedom restored to individual enterprise and to the individual conduct of life, we shall realize, as we have not in the past, the possibilities of doing things on a national scale, of rationally adapting the mechanism of national life to fit national ends. And there will be new national interests springing from our new participation in world affairs. There will be, in short, new fields of statistical inquiry.

It is possible that there will not be a ready and general acceptance of a premise implicit in what I have said: namely, that the organization of national statistics should, in fact, correspond in scope to the field of public interest. Is no weight to be given, it may be asked, to purely dispassionate and scientific interests? I confess to being somewhat skeptical with respect to the reality of a what is sometimes appropriately called "idle scientific curiosity." There is an interest in technique and there is an interest in problems, and may it not be that our "idle scientific curiosity" is merely a name for an interest in technique strong enough to make the choice of problem a matter of indifference. But without venturing further on disputed and dangerous ground one may safely observe that the function of a national statistical service is primarily that of securing and purveying statistical information; that is, in a large sense, of answering questions and of providing the material for the solution of problems. As statisticians I fear that we have sometimes permitted our interest in technique to blind us to the social importance of the right choice of the problems to be covered in our federal statistical service. There is much satisfaction to be derived from doing our best with bad statistical material, from replacing the missing facts by careful inference and shrewd conjecture. One can even sympathize with the scholar who complained that the modern wealth of printed bibliographies had destroyed scholarship. But as a guide to the choice and administration of national policy, verifiable facts are infinitely better than estimate and conjecture. If statistics is not to be merely an occult science, statisticians must interest themselves in enlarging the scope of their sources of information and particularly in what we may describe as the national choice of statistical problems.

Although before the war our national statistical activities could be explained in terms of past and present phases of public interest, it can not be said that all important phases of public interest were adequately represented. Even then, I think we shall all admit, our national statistical service had not kept pace with the fast-flowing current of economic and social change and with the accompanying development of new national interests. And with yet more profound changes

impending in the near future, some form of method of statistical reorganization and adjustment will be urgently needed. This is because, in general terms, the formulation and administration of wise national policies must depend upon the national self-knowledge that only statistical information, gathered on a much larger scale than we have been accustomed to think possible, can give. Nor must the importance of an elastic and comprehensive scheme of statistical organization as an element in preparedness for war be forgotten.

A committee of this Association, coöperating with committees of other associations, has been studying the problem of the organization of statistical work in Washington. I am informed that it has given favorable consideration to proposals looking toward the creation of a central statistical commission. It is to be hoped that its efforts will help to secure tangible progress toward that end. But the functions of such a commission ought to include more than merely introducing some measure of coördination into the work of the existing Washington offices. It should be empowered to make recommendations to Congress for the inauguration of new statistical activities, utilizing either established offices or new ones, according to the circumstances of the particular case. It should control some discretionary funds, to be used in special inquiries made by its own staff or, more frequently, by one or more of the established statistical bureaus. Its fundamental interest should be less in the statistical work that is being done than in the work that is not being done. It should try to eliminate some of the statistical dead wood that now cumbers the reports of many of the Washington bureaus. It should not refrain, even, from attempting to introduce an element of national prophecy as well as of national history into our statistics.

If the statistical problems brought sharply into the foreground by the war hold any lesson that has a significance for times of peace, it is that we have not yet begun to realize the possibilities of federal statistics as a general scheme of national accountancy, or the responsibilities which the future holds for the statistician.

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